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NANOCATALYSIS BY SUSTAINABLE ADVANCED MATERIALS

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Advanced nanocomposites have contributed to catalysis and are prime choice for the researchers in various important catalytic protocols and benign conversions. The nanocatalysts include magnetic-nanocomposites, carbon-based nanomaterials, core-shell (Pd@Pt) catalysts and morphology-dependent iron oxides. Sustainable nanotechnology improvements over the years have recommended significant and extraordinary series of progresses in the design of heterogeneous nanocatalysts. Notably, nanomaterials for catalysis can now be envisioned and organized with need for exact catalytic applications. Core-shell nanocomposites, morphology-dependent iron oxide and metal supported nanoparticles can be synthesized via more ecological paths with distinctive structure, morphology and composition. Our recent research activity on the practice of nanomaterials/nanocatalyst and its catalytic applications will be highlighted.

Recent Publications

1. Gawande M B et al. (2014) Microwave-assisted chemistry: synthetic applications for rapid assembly of nanomaterials and organics. *Account of Chemical Research*. 47(4):1338-1348.
2. Gawande M B, Branco P S and Varma R S (2013) Nanomagnetite (Fe₃O₄) as a support for recyclable catalysts

in the development of sustainable methodologies. *Chemical Society Reviews*. 42(8):3371-3393.

3. Gawande M B et al. (2015) Core-shell nanoparticles: synthesis and applications in catalysis and electrocatalysis. *Chemical Society Reviews*. 44(21):7540-7590.
4. Goswami A et al. (2017) In Situ generation of Pd-Pt core-shell nanoparticles on reduced graphene oxide (Pd@Pt/rGO) using microwaves: applications in dehalogenation reactions and reduction of olefins. *ACS Applied Material and Interfaces*. 9(3):2815-2824.

Biography

Manoj B Gawande pursued his PhD Degree in Chemistry in 2008 from the Institute of Chemical Technology, Matunga, Mumbai, India. After several research stints in Germany, South Korea, Portugal, Singapore, and England presently, he is working as an Associate Professor and Head of Nanocatalysis Group at RCPTM, Faculty of Science, Palacky University, Olomouc, Czech Republic. His research interests include: nanocatalysis and advanced nanomaterials and their applications. He is currently supervising several Doctoral students and Postdoctoral workers. He has published over 90 scientific publications, including reviews, patents, editorials, and articles. In 2017, he was admitted as a Fellow of Royal Society of Chemistry (RSC), UK.

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